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EXAMINER	
CROWE, DAVID R	
ART UNIT	PAPER NUMBER
2885	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,889	GRAHAM, MORTON	
	Examiner	Art Unit	
	DAVID R. CROWE	2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 June 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The examiner acknowledges the acceptance of the application under 35 USC 371 as a national stage application of PCT/GB2004/005111.

Examination is based on amended claims filed 6/14/2006 which include changes to conform to US dependency practice. These claims appear in the application publication of 9/20/2007.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the elliptical cross section as required by claim 5 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 6, 7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hulse et al (US 6,550,952).

Re claim 1: Hulse et al discloses an illumination device comprising a first elongate translucent member [waveguide 10], and LED light source [16] located at least at one end of the first member to pass light into and along the member, a second translucent member [14] arranged in superimposed relationship with the first translucent member thus to define a gas space there between; characterized by a surface formation [20a] on the first translucent member causing it, in use to function as a leaky wave guide allowing light to escape into the gas space for secondary diffusion therein, the second translucent member thus being adapted to pass the secondarily diffused light externally thereof. [See figures 1-3, column 4 line 44 through column 5 line 48]

Re claim 2: Hulse shows wherein the first member [10] is a rod, and the second member [14] is a tube surrounding the rod, and defining the gas space there between.

Re claim 4: Hulse shows the rod [10] being circular in cross section.

Re claim 6: Hulse shows a second embodiment in figure 3 wherein the LED light source comprises separate light sources [22] disposed at opposite ends respectively of the first translucent member.

Re claim 7: Hulse discloses a reflector [reflecting tape 20a] disposed on a part of the surface of the first member [10].

Re claim 9: Hulse discloses member [10] made from acrylic or polycarbonate. [See column 4 line 33]

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hulse et al in view of Levinson et al (US 6,299,338). The teachings of Hulse have been discussed above.

Hulse fails to teach the first member having an undulating surface.

Levinson et al teaches a decorative lighting apparatus [400] with translucent member [430] and light emitting diodes [410] disposed on the edge of the translucent member. Figure 1 shows the transmissive body [130] having an undulating surface.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to curve the first member [10] of Hulse as shown by Levinson et al in order to provide a wider variety of patterns and shapes to increase the decorative nature of the signage device of Hulse.

6. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hulse et al. The teachings of Hulse have been discussed above.

Re claim 5: Although Hulse fails to teach the cross section of the rod being elliptical; it would have been obvious to create an elliptical rod to reduce the thickness of the lighting device while still illuminating a wide band similar to truncating the rod as shown in figure 18. Lacking any criticality, changing the form or shape of prior art parts does not make the claimed invention patentable over the prior art. In re Dailey, 149 USPQ 47.

Re claim 10: Although Hulse fails to explicitly teach the second translucent member [14] being made from acrylic or polycarbonate, it would have been obvious to one of ordinary skill in the art to select acrylic or polycarbonate as the material of the second member since the first member is already made from said materials, and it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. In re Leshin, 125 USPQ 416.

7. Claims 8, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hulse et al in view of Sugiyama et al (US 5,982,969). The teachings of Hulse have been discussed above.

Re claim 8: Hulse et al fails to teach a reflector disposed on part of the surface of the second member.

Sugiyama teaches a two layer optical tube with a first member [12] and a second member [11], wherein a portion of the surface of second member [11] includes a reflector [14] in addition to a reflector [13] disposed on the surface of the first member. [See figures 2 and 3, column 4 lines 25-51]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a second reflector [14] of Sugiyama to the outer surface of second member [14] of Hulse in order for the illumination device of Hulse to only provide light in the direction desired by the user.

Re claim 14: Hulse modified by Sugiyama further fails to teach the reflector being co-extruded with the second member to lie flush with the internal surface thereof.

Hulse does however teach the first reflective portion [13] inlaid into the first member and therefore being flush therewith.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the parts of Hulse modified by Sugiyama such that the reflective portion [20a] of Hulse is inlaid into the second member [14] in order to maintain a flush surface capable of directing light out of the second member only in the

desired direction while further providing the first member of Hulse with grooves 26 to allow light to emitted from the first member. The method of forming the reflector with the second member in a flush manner by extrusion per se is not germane to the issue of patentability of the device itself.

Re claim 15: Sugiyama shows the reflector [14] in figure 2 corresponding is size to the first reflector [13] and in figure [3] having a width significantly larger than the first reflector. Although Sugiyama and Hulse fails to suggest selecting the reflector to be one-quarter of the surface it would have been obvious to one of ordinary skill in the art to select a reflector width based on the desired output arc of the lighting device.

8. Claims 11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hulse et al in view of Oyama (US 5,233,679). The teachings of Hulse have been discussed above.

Re claim 11: Hulse et al teaches grooves [26] on a holographic film applied to the first member to allow the light to be emitted from the first member [10].

Hulse fails to teach using striation.

Oyama et al teaches a translucent member [10] which is illuminated by a light source [20] through the end [28] of the fiber. The fiber [10] further including striations [16] formed on the light radiating surface of the first member to cause light entering the edge of the body to be emitted out of the body through the radiating surface. [See figure 1, column 4 line 17 through column 5 line 16]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the first member [10] of Hulse with the fiber [10] of Oyama in order to provide a uniform diffuse light out of the first member and through to the second member [14] of Hulse at an arc larger than provided by the reflector [20a] of Hulse.

Re claim 16: As applied to Hulse modified by Oyama, Oyama teaches a plurality of striations cut in the surface of the first translucent member; the V-shaped striations thus created extend at least substantially throughout the length of the first member and are spaced apart around at least a part of the extent of the surface of the first member.

Although Hulse modified by Oyama fails to explicitly suggest the depth and width of the striations, it would have been obvious to one of ordinary skill in the art at the time the invention was made to cut the grooves between .5 and 1 mm in size to optimize the diffusion and light emitting effects for the translucent first member, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum range involves only routine skill in the art. In re Aller, 105 USPQ 233.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hulse et al modified by Oyama in further view of Yamamoto et al (US 6,601,984). The teachings of Hulse modified by Oyama have been discussed above.

Hulse modified by Oyama fails to teach increasing the striation in the central portion of the first member away from the ends.

Yamamoto et al teaches a translucent member [1] with at least one LED [2] disposed on each end of the member [1], and grooves [11] formed in the first member for diffracting light out of the member. Yamamoto teaches increasing the striation [increasing the density of grooves by moving them closer together] in the central region of the light member [1] further from the LEDs at the edges of the member. "It is desirable to set a wider interval between grooves 11 on the ends of the light-guiding member 1, that is, near the LEDs 2, and to gradually narrow the intervals going away from the LEDs 2." [See figures 1 and 2, column 4 line 66 through column 5 line 62]

It would have been obvious to one of ordinary skill in the art to increase the striation of the first member [10] of Hulse modified by Oyama in the central portion of the member away from the light sources in order to, "Achieve a uniform illumination along the entire length of the light-guiding member 1," as suggested by Yamamoto.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hulse et al in view of Strack et al (US 3,901,674). The teachings of Hulse have been discussed above.

Hulse et al fails to teach spacers between first member [10] and second member [14].

Strack et al teaches optical fiber [16] with a first member [rod 18], a second member [tube 20] surrounding the first member and forming an air gap [26], wherein support means [24] are provided in the gas space to maintain a predetermined special relationship between the first and second members. [See figure 2, columns 2 and 3]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the spacers [24] of Strack between the members [10 and 14] of Hulse in order to maintain the first member [10] centered in the tube member [14] as suggested by Strack as the purpose of the spacers such that the gap remains constant and subsequent lighting effects uniform.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hulse et al modified by Oyama and Yamamoto et al (US 6,601,984) in further view of Kuo (US 2004/0075994). The teachings of Hulse modified by Oyama and Yamamoto have been discussed above.

Hulse modified by Oyama and Yamamoto teaches using striation which increases away from the light sources but fails to suggest doing so with additional striations occupying less than the overall length of the first member as claimed.

Kuo teaches a first translucent member [light guide 2] having striations [veins 30] disposed on the surface therefore to facilitate light incident on the light guide [2] view light source [1] disposed at the end thereof being emitted from the light guide [2] out of the emission face thereof. As clearly shown in figure 7, the density of the veins [31] increases with distance from the light source, thereby maintaining uniform emission, in a manner similar to that suggested by Yamamoto. Further, the increase in density/number of veins at the far side of the light guide is provided by angling the veins such that they meet at a central distance position and some of said veins do no

originate at the incident face of the light guide, thereby occupying less than the overall length of the light guide as claimed. [See figures 7 and 8, paragraphs 19-25]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the striations of Hulse modified by Oyama and Yamamoto to include striations that do no run the full length of the translucent member [10] as shown in Kuo as just one of a number of striation patterns known in the art to refract more light out of a light guide at a position further from the light source in order to maintain a uniform light emission pattern.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Suzuki et al (US 6,612,710) teaches a light guide with an additional diffusion pattern on the central portion of the emission surface in addition to the diffusion pattern on the bottom surface of the light guide in order to concentrate the light output in a region of the device furthest from the light source as found in claim 17.

Pelka et al (US 2002/0114168) teaches a light guide with LED light sources emitting light into the ends thereof.

Ting Yup (US 2002/0105808) teaches an illumination device including two tube-like translucent members, one disposed around the other with an air gap formed in between. The translucent members are formed with striation to emit light therefrom. This reference would read on a number of claims under 103(a) since it only requires the

well known substitution of an LED light source for the disclosed conventional light source.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID R. CROWE whose telephone number is (571)272-9088. The examiner can normally be reached on 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on 571-272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David R Crowe
Examiner
Art Unit 2885

/John A. Ward/
Primary Examiner, Art Unit 2885

DRC